



Renewable Energy

Renewable Energy Incentive Program

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Agenda

- Why Renewable Energy?
- Incentives
- Residential Technologies
- Project Funding
- Items of Note
- Summary
- Questions & Answers

Why Renewable Energy?

- Environmental Steward
- Energy Independence
- “Positive Image”
- Marketing – Product Differentiation
- Utility Price Hedge
- Economic
- Regulatory Compliance





Background

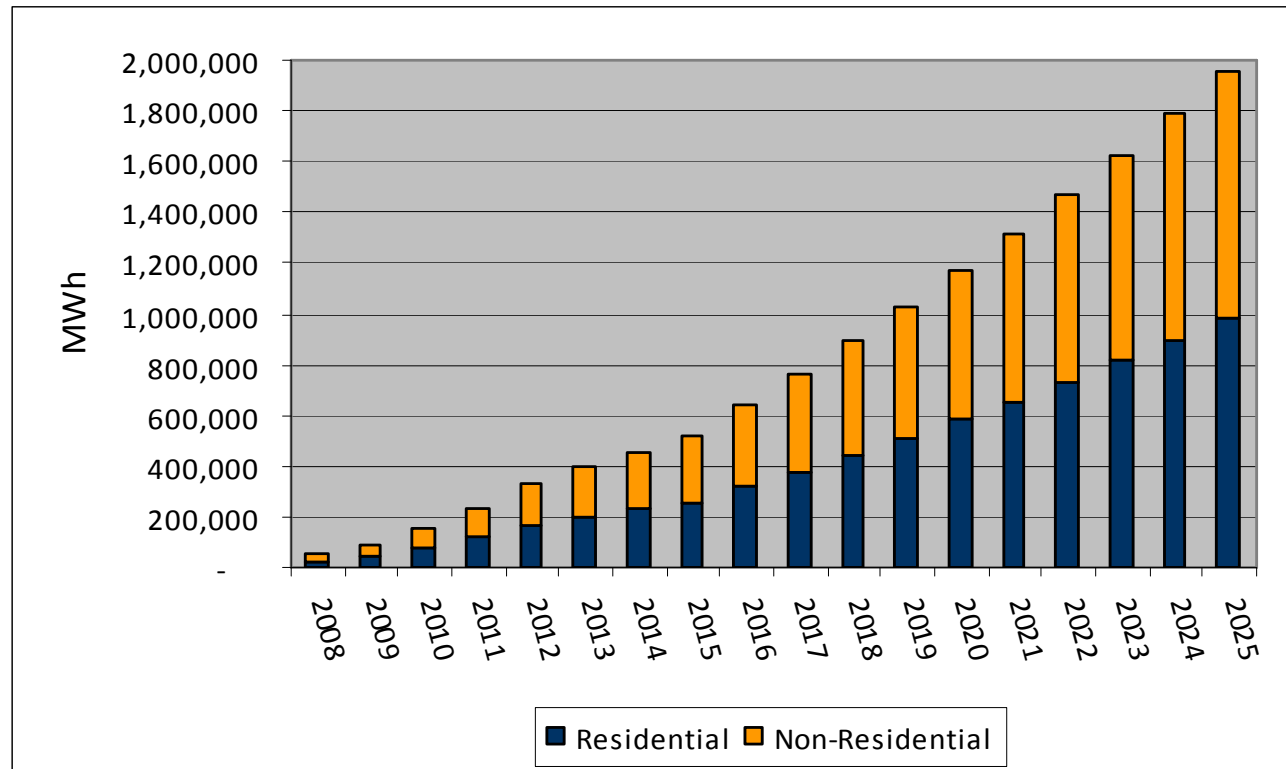
Renewable Energy Standard – Arizona Corporation Commission (ACC)

– RES Rules

- By 2025 – 15% of APS Retail Sales (6,525,000 MWHs)
 - 70% - Renewable Generation (Utility Scale)
 - 30% - Distributed (Customer Side of the Meter)
 - » 50% Residential – 50% Non-Residential
 - In 2008 – 1.75% of APS Retail Sales (516,000 MWHs)
 - 90% - Renewable Generation (Utility Scale)
 - 10% - Distributed Energy (Customer Side of the Meter)
 - » 50% Residential – 50% Non-Residential
 - In 2009 – 2.0% of APS Retail Sales (586,666 MWHs)
 - 85% - Renewable Generation (Utility Scale)
 - 15% - Distributed Energy (Customer Side of the Meter)
 - » 50% Residential – 50% Non-Residential
- APS 2009 Implementation Plan approved December 2008
- Distributed Energy Administration Plan (5-YR Plan)
 - Defined 2009 DE budget (Customer Incentives over \$50 Million)
 - Renewable Fuel Sources (Solar, Wind, Biogas/Biomass, Geothermal, Hydro)

Background

Targets



- Overall RES Target rises from 1.75% of APS's retail sales in 2008 to 15% by 2025
- DE Target rises from 10% of RES in 2008 to 30% in 2012
- DE Target rises from 50,000 MWhs in 2008 to nearly 2,000,000 MWhs by 2025

Background

•Results to date:

- Over 3,600 participants in the program.
- Capacity to generate over 13 megawatts of “green” electricity.
- Over 14,000,000 kWhs of energy displaced by solar water heaters alone.
- Over \$35,000,000 in renewable energy incentives paid so far.
- More than 1,800 PV installed by customers.
- Over 1,600 solar water heaters installed by residential customers.

•Market improvements in 2009

- Federal Investment Tax Credit extended for eight years
- Lifting of \$2,000 limit of federal tax credit for residential customers



Incentives

– Up-Front Incentive (UFI):

- A one-time incentive paid to a customer upon successful completion of all program requirements.
- In exchange for this incentive, APS will receive title and ownership to all the Renewable Energy Credits (RECs) attributed to the operation of the customer's system.
- All up-front incentives are limited to 50% of the project costs and can not exceed a total of \$75,000.
- Incentive amounts are determined by customer rate class, technology, and application.
- Not all technologies are eligible for up-front incentives.

Residential Technologies

— Residential Technologies:

- Photovoltaic Systems

- Grid-Tied
- Off-Grid

- Solar Water Heating

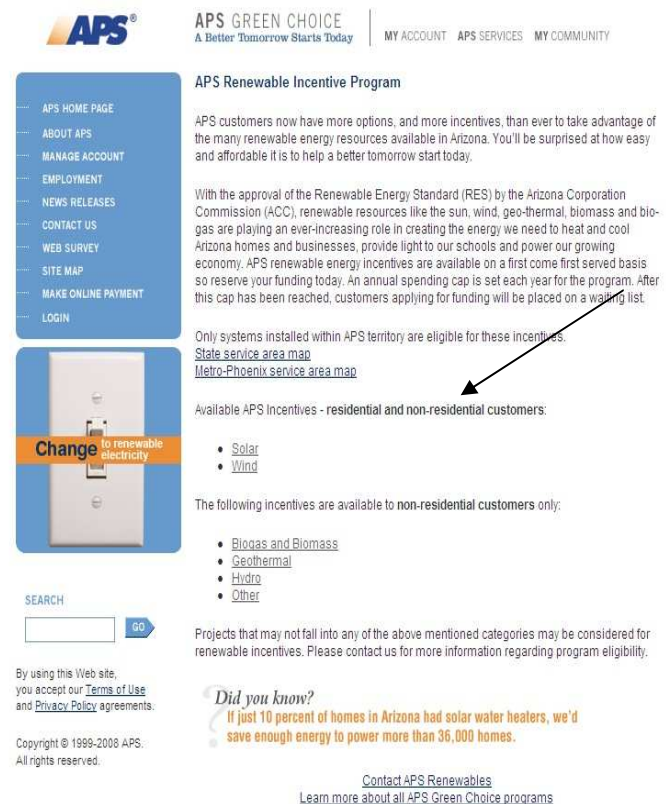
- Solar Space Heating

- Wind

- Grid-Tied
- Off-Grid

- Geothermal

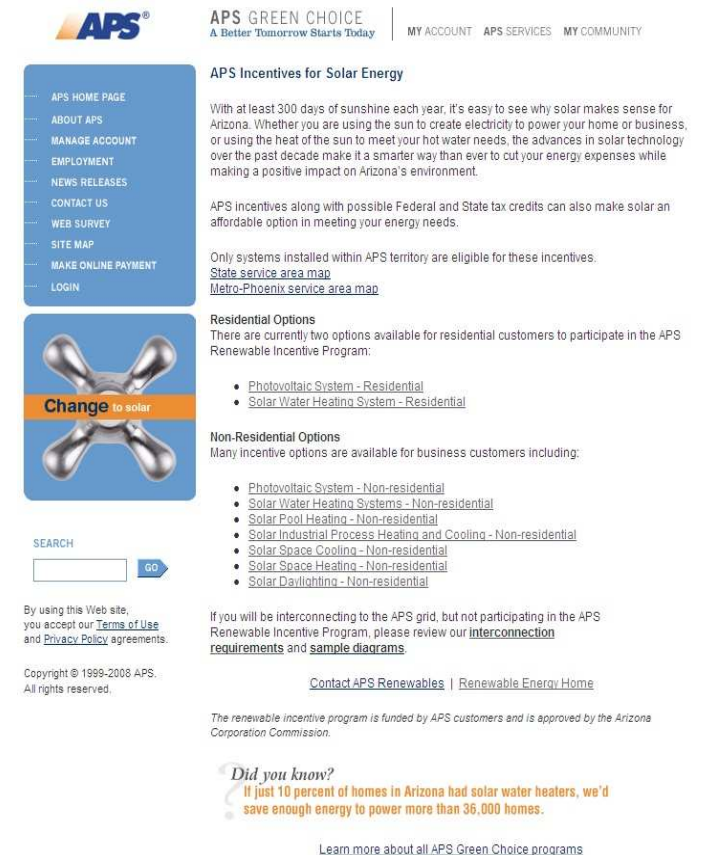
- Electric
- Thermal



The screenshot displays the APS Green Choice website. At the top, the APS logo is followed by the text "APS GREEN CHOICE" and the tagline "A Better Tomorrow Starts Today". Navigation links include "MY ACCOUNT", "APS SERVICES", and "MY COMMUNITY". The main heading is "APS Renewable Incentive Program". Below this, a paragraph states: "APS customers now have more options, and more incentives, than ever to take advantage of the many renewable energy resources available in Arizona. You'll be surprised at how easy and affordable it is to help a better tomorrow start today." A subsequent paragraph explains that with the approval of the Renewable Energy Standard (RES) by the Arizona Corporation Commission (ACC), renewable resources like the sun, wind, geo-thermal, biomass and bio-gas are playing an ever-increasing role in creating the energy we need to heat and cool Arizona homes and businesses, provide light to our schools and power our growing economy. It notes that APS renewable energy incentives are available on a first come first served basis so reserve your funding today. An annual spending cap is set each year for the program. After this cap has been reached, customers applying for funding will be placed on a waiting list. A note specifies that only systems installed within APS territory are eligible for these incentives, with links to "State service area map" and "Metro-Phoenix service area map". A section titled "Available APS Incentives - residential and non-residential customers:" lists "Solar" and "Wind". Another section titled "The following incentives are available to non-residential customers only:" lists "Biogas and Biomass", "Geothermal", "Hydro", and "Other". A search bar is present with a "GO" button. At the bottom, there is a "Did you know?" section stating: "If just 10 percent of homes in Arizona had solar water heaters, we'd save enough energy to power more than 36,000 homes." Below this is a link to "Contact APS Renewables" and "Learn more about all APS Green Choice programs".

Residential Technologies

- Photovoltaic Systems
 - UFI: up to \$3/watt Grid-Tied & \$2/watt Off-Grid
- Solar Water Heating
 - UFI: up to \$0.75/kWh
 - Based on SRCC OG-300 first year energy savings
- Solar Space Heating
 - UFI: Up to \$0.75/Kwh
 - Based on SSH Calculator
- Wind
 - UFI: \$2.50/watt Grid-Tied & \$2.00/watt Off-Grid
- Geothermal
 - UFI: \$0.50/watt Electric & \$1.00/watt Thermal



The screenshot displays the APS Green Choice website. At the top, the APS logo is on the left, and the text 'APS GREEN CHOICE A Better Tomorrow Starts Today' is on the right, followed by links for 'MY ACCOUNT', 'APS SERVICES', and 'MY COMMUNITY'. A left sidebar contains a menu with links: 'APS HOME PAGE', 'ABOUT APS', 'MANAGE ACCOUNT', 'EMPLOYMENT', 'NEWS RELEASES', 'CONTACT US', 'WEB SURVEY', 'SITE MAP', 'MAKE ONLINE PAYMENT', and 'LOGIN'. The main content area is titled 'APS Incentives for Solar Energy'. It includes a paragraph about the benefits of solar in Arizona, a section on 'APS incentives along with possible Federal and State tax credits', and links for 'State service area map' and 'Metro-Phoenix service area map'. Below this is a 'Residential Options' section with two bullet points: 'Photovoltaic System - Residential' and 'Solar Water Heating System - Residential'. A 'Non-Residential Options' section follows, listing various systems like 'Photovoltaic System - Non-residential', 'Solar Water Heating Systems - Non-residential', 'Solar Pool Heating - Non-residential', 'Solar Industrial Process Heating and Cooling - Non-residential', 'Solar Space Cooling - Non-residential', 'Solar Space Heating - Non-residential', and 'Solar Dairilighting - Non-residential'. A search bar with a 'GO' button is present. At the bottom, there is a copyright notice for 1999-2008 APS and a link to 'Contact APS Renewables | Renewable Energy Home'. A 'Did you know?' section states that 10 percent of homes in Arizona could save enough energy to power more than 36,000 homes, with a link to 'Learn more about all APS Green Choice programs'.

Residential Technologies

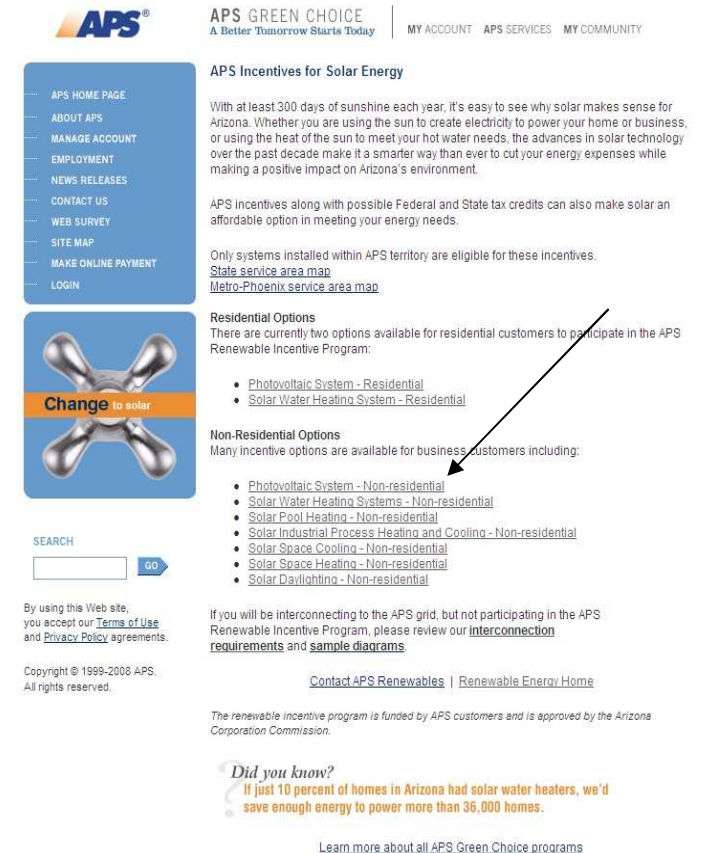
— PV Example

- 5 kWdc System
- Project Cost \$35,000
- Installation Facts:
 - 20° Degrees off of True South
 - 25 °Tilt Angle
 - No Shading
 - Annual Production 8,000 kWhs

APS Rebate:

De-rate Chart: 100% of Rebate - \$3.00/kWdc
5 kWdc x \$3.00/kWdc = \$15,000
UFI Project Cap: \$35,000 x 50% = \$17,500
UFI Incentive Cap: = \$75,000

APS UFI Rebate = \$15,000



The screenshot displays the APS Green Choice website. The header includes the APS logo, the tagline 'A Better Tomorrow Starts Today', and navigation links for 'MY ACCOUNT', 'APS SERVICES', and 'MY COMMUNITY'. A left sidebar contains a menu with links: 'APS HOME PAGE', 'ABOUT APS', 'MANAGE ACCOUNT', 'EMPLOYMENT', 'NEWS RELEASES', 'CONTACT US', 'WEB SURVEY', 'SITE MAP', 'MAKE ONLINE PAYMENT', and 'LOGIN'. The main content area is titled 'APS Incentives for Solar Energy' and explains that with at least 300 days of sunshine each year, it's easy to see why solar makes sense for Arizona. It mentions that APS incentives along with possible Federal and State tax credits can make solar an affordable option. Below this, it states that only systems installed within APS territory are eligible for these incentives, with links to 'State service area map' and 'Metro-Phoenix service area map'. The 'Residential Options' section lists two options: 'Photovoltaic System - Residential' and 'Solar Water Heating System - Residential'. The 'Non-Residential Options' section lists eight options: 'Photovoltaic System - Non-residential', 'Solar Water Heating Systems - Non-residential', 'Solar Pool Heating - Non-residential', 'Solar Industrial Process Heating and Cooling - Non-residential', 'Solar Space Cooling - Non-residential', 'Solar Space Heating - Non-residential', 'Solar Drying - Non-residential', and 'Solar Drying - Non-residential'. A search bar is located below the menu. At the bottom, there is a copyright notice for 1999-2008 APS, a link to 'Contact APS Renewables | Renewable Energy Home', and a 'Did you know?' section stating that if just 10 percent of homes in Arizona had solar water heaters, they would save enough energy to power more than 36,000 homes. A link to 'Learn more about all APS Green Choice programs' is also present.

Project Funding

- Utility Incentives
- Tax Incentives
 - Federal - 30%
 - State - 25% - \$1,000 Cap
- Leases
 - Operating
 - Capital
- Loans – Secured vs. Unsecured
- Power Purchase Agreements / Solar Service Agreements



Project Funding

— PV Example

- 6 kWdc System
- Project Cost \$45,000
- Federal Incentive – 30% (\$15,000)*
- State Incentive – 25% (\$ 1,000)*
- APS Incentive – (\$3/w x 6,000) (\$18,000)
- Net Cost \$11,000

*Consult your Tax Professional for Clarification and Interpretation

6kW System will produce approximately 9,600 kWhs/year

Average Cost per kWh ~ \$0.11/kWh

Annual Energy Offset = 9,600 kWhs x \$0.11/kWhs = \$1,056

Simple Payback ~ 10.4 Years



Items of Note

- Interconnection Agreement – REQUIRED
- Credit Purchase Agreement – 20 Years
- SB1254 – HOA Must Allow Solar Energy
- Appraisals – Fair Market Value
- Tax Assessments – Tax Basis

Summary

- Solar, Wind, Biogas/mass, Geothermal, Hydro, & ???
- UFI – 50% of Project Cost - \$75,000
- Website – www.aps.com/renewables (Solar & Renewable Rebates)
- Program Coordinators (602) 328-1924 or dg_interconnect@aps.com



Questions & Answers

Thank you





Questions & Answers

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starts today



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